

## STUDIES OF THE OCCURRENCE AND HARMFULNESS OF APHIDS (HOMOPTERA, APHIDIDAE) ON SUNFLOWER

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The following leaf aphids attack sunflowers in Yugoslavia: Aphis fabae Scop., A. evonymi Fabr., A. gossypii Glow. and Brachycaudus helichrysi Kalt. (Sutić, 1960; Čamprag et al., 1975; Čamprag, 1988). A. fabae and B. helichrysi are the most frequent and the most harmful. They are counted among the major pests of the sunflower, especially the latter species.

An investigation on the occurrence and distribution of leaf aphids in northeastern Yugoslavia (Vojvodina Province) was conducted in the period 1951 - 1987. The investigation included several hundreds of sunflower plots. One hundred plants have been analysed in each plot, ten plants sampled at ten spots diagonally across the plot.

Leaf aphids occur regularly each year but varying in distribution and intensity. Intensive attacks at large areas were registered in 1951, 1957, 1959, 1965, 1972 - 1975, 1978, and 1984. The attacks in 1974 and 1978 were particularly intensive. In the last four decades, intensive attacks were registered in ten years. Generally, an intensive attack by leaf aphids brings a yield reduction by 11%. Furthermore, the attack by leaf aphids intensified the infection by Sclerotinia sclerotiorum.

The table contains the results for 12 years, i.e., the periods 1971 - 1978 and 1982 - 1987, for all 385 sunflower plots that have been checked in that period. Leaf aphids have been observed in 96% of the plots. The average percentages of infested plants in May, June, and July were 28%, 47% (with the annual variations from 9 to 97%), and 15%, respectively.

Leaf aphids may be found on sunflower plants from May 10 to mid-July or the end of July. The pests are most numerous in the course of June. An annual check of 16 sunflower plots rendered the following dynamics of occurrence and frequency of B. helichrysi: 62% of infested plants and 19 aphids per plant, on average, on May 19; 97% and 168, respectively, on June 25; 33% and 57, respectively, on July 14, aphids could not be found on July 25.

Sunflower plants in border rows are attacked earlier and with a higher intensity than the plants in the center of the plot. In a large sunflower plot, for example, on May 17, the infestation was 100% in the border rows, 30% 50 meters inside the plot, 14% 100 meters inside the plot, and 4% in the center of the plot, about 200 meters from the border. Significant differences in the intensity of attack were registered between the strips to 50 meters from the border and 100 - 200 meters from the border of the plot (Čamprag and Thalji, 1981).

TABELA

The occurrence of Aphididae in sunflower plots in June, over 12 years, in Vojvodina Province

Year	% of attacked plots	% of attacked plants		Dominant species
		Variation per plot	Average	
1971	100	5 - 82	28	B. helichrysi
1972	100	7 - 100	53	A. fabae
1973	96	0 - 100	31	A. fabae
1974	100	89 - 100	97	B. helichrysi
1975	100	25 - 100	58	B. helichrysi
1978	96	0 - 100	93	B. helichrysi
1982	100	14 - 65	34	B. helichrysi
1983	100	2 - 45	18	A. fabae
1984	100	5 - 100	78	B. helichrysi
1985	61	0 - 33	9	A. fabae
1986	100	26 - 81	48	B. helichrysi
1987	100	6 - 24	16	A. fabae

The intensity of occurrence of leaf aphids is increased by early sowing, weed infestation, increased nitrogen doses, etc. A positive correlation was established between the dose of nitrogen fertilizer and the density of leaf aphid population in sunflower crop.

The major predator of leaf aphids the ladybug. A single Coccinella septempunctata larva, in the course of its life, destroys about 600 leaf aphids.

## LITERATURE

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